

# Simultaneous methane and acetylene measurements anywhere



Enhanced Performance model delivers *unsurpassed performance*

## Methane/Acetylene Analyzer (CH<sub>4</sub>, C<sub>2</sub>H<sub>2</sub>, H<sub>2</sub>O)

### Features and Benefits

- Developed for applications requiring highest accuracy (Enhanced Performance model)
- Gases measured simultaneously
- Measured absorption spectra provides data validation
- CH<sub>4</sub> and C<sub>2</sub>H<sub>2</sub> reported on dry mole basis directly
- Ideal for tracer studies and chamber flux
- Widest measurement range
- *Extended Range* option allows methane measurements at levels up to 10%
- Validated at leading labs and monitoring networks, LGR's EP models deliver *unsurpassed performance*

LGR's Methane/Acetylene Analyzer is the world's most advanced instrument for simultaneous measurements of methane, acetylene and water vapor. Quite simply, no other analyzer provides higher performance.

Measurement of acetylene can be extremely useful in tracer studies of landfills and other scientific studies. For these tracer studies, the ability to report with high sensitivity and accuracy over a very large dynamic range is imperative. The MMA is extraordinarily simple to use, requires very low power and is extremely rugged which makes it ideal for field studies. In addition, analysis of the measured absorption spectra allows the instrument to accurately correct for water vapor dilution and absorption line broadening effects and thus to report CH<sub>4</sub> and C<sub>2</sub>H<sub>2</sub> on a dry mole fraction basis directly without drying or post processing. Furthermore, LGR's new "*Extended Range*" option provides accurate measurements at levels up to 10% (without dilution) without reducing precision and sensitivity at typical ambient levels.

LGR's new "*Enhanced Performance*" series incorporates proprietary internal thermal control

for ultra-stable measurements with unsurpassed precision, accuracy and drift as validated at several leading labs and monitoring networks in Europe, Asia and the US. Moreover, only LGR's analyzers provide reliable *guaranteed* measurements at mole fractions more than 1000 times ambient levels.

LGR's patented technology, a fourth-generation cavity enhanced absorption technique, has many advantages (simpler, easier to build, rugged) over older, conventional cavity ringdown spectroscopy (CRDS) techniques. As a result, LGR Analyzers provide higher performance at lower cost.

LGR Analyzers have an internal computer (Linux OS) that can store data practically indefinitely on a hard disk drive and send real time data to a data logger via the digital (RS232), analog or Ethernet outputs. In addition, LGR analyzers may be controlled remotely via the Internet. This capability allows the user to operate the analyzer using a web browser anywhere Internet access is available. Furthermore, remote access allows full control of the instrument and provides the opportunity to obtain data and diagnose the instrument operation without being on site.

# Methane / Acetylene Analyzer ( $\text{CH}_4$ , $\text{C}_2\text{H}_2$ , $\text{H}_2\text{O}$ )

## Performance Specifications

### Precision ( $1\sigma$ , 5 sec / 100 sec):

$\text{CH}_4$ : 1 ppb / 0.3 ppb  
 $\text{C}_2\text{H}_2$ : 0.4 ppb / 0.1 ppb  
 $\text{H}_2\text{O}$ : 5 ppm / 2 ppm

### Maximum Drift (Enhanced Performance model)

(15 min average, at STP, over 24 hrs):

$\text{CH}_4$ : 1 ppb  
 $\text{C}_2\text{H}_2$ : 1 ppb  
 $\text{H}_2\text{O}$ : 10 ppm or 1% reading, whichever greater

### Measurement Rates (user selectable):

0.01 – 1 Hz  
(external pump required for < 6 second flow response)

### Measurement Range (meets all specs):

$\text{CH}_4$ : 0.002 – 100 ppm  
 $\text{C}_2\text{H}_2$ : 0.002 – 100 ppm  
 $\text{H}_2\text{O}$ : 10 – 70000 ppm

### Operational Range (all models)

(external calibration may be required):

$\text{CH}_4$ : 0 – 1000 ppm  
 $\text{CH}_4$ : 0 – 10% (with Extended Range option)  
 $\text{C}_2\text{H}_2$ : 0 – 1000 ppm  
 $\text{H}_2\text{O}$ : 0 – 70000 ppm (0 – 100% relative humidity)

### Sampling Conditions (all models):

Sample Temperature: -10 – 50 °C  
Operating Temperature (standard model): 5 – 45 °C  
Operating Temperature (EP model): 0 – 45 °C  
Ambient Humidity: 0 - 100% RH non-condensing

### Outputs (all models):

Digital (RS232), analog (all 3 gases), Ethernet, USB

### Power Requirements:

115/230 VAC, 50/60 Hz  
100 watts (Standard models)  
150 watts (Enhanced Performance model, steady state)

### Dimensions:

Benchtop Package (Standard model): 10" x 38" x 14"  
Rackmount Package (Standard model): 8.75" x 19" x 24"  
Rackmount Package (Enhanced Performance): 14" x 19" x 24"

### Weight:

29 kg (Standard models)  
40 kg (Enhanced Performance model)



## Ordering Information

Rackmount (Standard model): 907-0023

Rackmount (Enhanced Performance model): 911-0023

Ultraportable package (see separate datasheet): 915-0023

## Accessories

908-0003-9001: Multiport Inlet Unit – 16 inlet port multiplexer

908-0003-9002: Multiport Inlet Unit – 8 inlet port multiplexer

908-0008-9009: N920 Pump –  
provides flow-through (1/e) time = 1.2 secs

908-0001-9011: N940 Pump –  
provides flow-through (1/e) time = 0.7 secs

904-0002: Data Logging System – multi-channel data logging system records and synchronizes serial (RS-232) outputs from multiple LGR analyzers and other devices (GPS, anemometers)

## Options

Extended Range –

Extends methane upper range to 10% (100,000 ppm)



Instrument complies with 21 CFR 1040.10 and 1040.11